REMARKS

The Rejection and Traverse

The Examiner again rejects the application for substantially all of the reasons given in previous Office Actions (communication of July 6, 1998, March 3, 1997 and July 1, 1996.) Applicants traverse the rejection as set forth in their responses of November 27, 1996, March 29, 1998 and September 11, 1998 and incorporate those responses herein by reference.

The Rejection Under 35 U.S.C. § 112 and Traverse

The Skilled Artisan Standard of 35 U.S.C.§ 112

Paragraph one of 35 U.S.C. § 112 sets the standard of enablement for the written description of a patent application by directing it provide full, clear, concise and exact terms to allow a person with skill in the art to which it pertains, or with which it is most nearly connected to make and use the invention. Initially, applicants address the nature of this art, and who this artisan is.

The written description describes compositions, processes, and articles of manufacture in the art of inorganic oxide films or coatings, such as silicon oxides and/or metal oxides, primarily used in glass manufacture, but not necessarily confined to this end use. Columns 1-3 of the written description set out various patents and scientific articles that describe these films and the method of their manufacture. A cursory review of these and other references in this field will show that the inventors and authors draw on a highly developed base of information, on a par with the most sophisticated chemical arts.

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Who then is the artisan in this field? Certainly, on average, it is not someone who has only had basic courses in inorganic chemistry, organic chemistry or chemical engineering, with some mathematics and physics courses. These are highly trained chemists and chemical engineers, many of whom have an advanced degree, such as a Master of Science degree or a Ph.D. in the chemical arts. Additionally they would have had several years of industrial experience, either in the laboratory and/or in industrial production of these compositions or films. Most important, they would have a very thorough knowledge of the technical and scientific literature in their field, and in many instances contribute to this published material by authoring scientific papers and patents, and regularly refer to other published information relating to their work.[1]

Applicants now turn to the rejection under 35 U.S.C. § 112.

The Examiner rejects claims 1-20, 22-26 and 28-55 under 35 U.S.C. § 112, first paragraph. Applicants traverse the rejection and request further consideration and reexamination.

The Examiner argues that the specification, although "enabling for compositions, films and coating methods and coated articles including coating compositions

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[1] See M.P.E.P. § 2164.05 (b). In 35 U.S.C. § 103 inquiries the Courts have viewed a person with skill in the art as one who has "knowledge of prior research. . . and literature used in [the] field." In re Merck & Co., 800 F.2d 1091, 231 U.S.P.Q. 375, 379. (Fed. Cir. 1986). Also see, M.P.E.P. § 2141.03 that sets out factors for determining the level of skill in obviousness determinations as (1) the educational level of the inventor, (2) type of problems encountered in the art, (3) prior art solutions to those problems, (4) rapidity with which innovations are made, (5) sophistication of the technology, and (6) educational level of workers active in the field, citing Environmental Designs, LTD. v. Union Oil Co., 731 F.2d 693,696, 218 U.S.P.Q. 865,868 (Fed. Cir. 1983), Cert. denied 464 U.S. 1034 (1984) and Chore-Time Equipment, Inc. v. Cumberland Corp., 713 F.2d 774, 218 U.S.P.Q. 673 (Fed. Cir. 1983).

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comprising the TEOS, MBTC and an accelerant of triethyl borate, triethyl phosphate or water, does not reasonably provide enablement for inventions that do not use the recited silicon oxide precursors and inventions where the metal oxide precursor does not comprise a tin oxide precursor." (October 13, 1998 Office Action, page 2, second full paragraph).

Applicants again question the Examiner's rejection of claims 1-20, 22-26 and 28-32 on the foregoing grounds because these claims do recite the genus for not only the silicon oxide precursors but also the tin oxide precursors, and metal oxide precursors. If, however, by noting the TEOS silicon oxide precursor and the MBTC tin oxide precursor, the Examiner intends these as the "recited" material and no others, he apparently rejects all of the foregoing claims on the grounds that they recite the genus that includes the TEOS silicon oxide precursor compounds, MBTC tin oxide precursor, or metal oxide precursor compounds without sufficient species in the written description to inform the artisan of the metes and bounds of the invention.

If the Examiner rejects the application on these grounds, Applicants point out that the written description gives more than an adequate number of species to support the various recitations of generic language in the claims relative to either the silicon oxide precursors, the tin oxide precursors or the metal oxide precursors. The paragraph bridging columns 4 and 5 of the written description describe the silicon oxide precursor as one that has "the general formula $R_mO_nSi_p$, where m is from 3 to 8, n is from 1 to 4, p is from 1 to 4, and R is independently chosen from hydrogen and acyl, straight, cyclic, or branched-chain alkyl and substituted alkyl or alkenyl of from one to about six carbons, and phenyl or substituted phenyl. Preferred precursors for silicon

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oxide include tetraethylorthosilicate, diacetoxydi-t-butoxysilane, ethyltriacetoxysilane, methyltriacetoxysilane, methyldiacetoxylsilane, tetramethyldisiloxane, tetramethylcyclotetrasiloxane, dipinacoloxysilane, 1,1-dimethylsila-2-oxacyclohexane, tetrakis (1-methoxy-2-propoxy) silane, and triethoxysilane."

Surely the artisan when presented with the foregoing recitation of silicon oxide precursors employed in the practice of the invention of Claims 1-32 would find no difficulty in selecting one either falling within the generic description, or more simply one of the species in order to practice the invention. The Examiner has to point out how or why the generic silicon oxide precursor as set out in the written description does not inform the person with skill in this art how to make and use the invention. What more would this artisan need? The written description describes those silicon compounds that provide the advantages of Claims 1-32 (coating compositions that can be applied at relatively high rates) and these claims also include this description. Applicants also inform the artisan in the written description that employing these silicon compounds to the exclusion of others identified in the written description gives the advantage of relatively high speed coating as claimed.

Going on to the tin oxide precursors, the written description at column 4, lines 54 through 63 defines these as "described by the general formula R_nSnX_{4-n}, where R is independently chosen from straight, cyclic, or branched-chain alkyl or alkenyl of from one to about six carbons; phenyl, substituted phenyl, or $R'CH_2CH_2$—, where R' is MeO_2C—, EtO_2C—, CH_3CO—, or HO_2C—; X is selected from the group consisting of halogen, acetate, perfluoroacetate, and their mixtures; and where n is 0, 1, or 2. Preferred precursors for tin oxide in the article of this invention are the organotin

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halides." Again, would the artisan view this statement of the tin oxide precursors in a way that would prevent her or him from making and using the invention? Is the artisan without any resources, as the Examiner would think, so that this artisan would not know what compounds the Applicants refer to, or how to practice the invention?

Lastly, as to precursors for the deposition of metal oxides, the written description in column 4, lines 46-53 states that these compositions "include, *e.g.*, aluminum alkyls and alkoxides, cadmium alkyls, germanium halides and alkoxides, indium alkyls, titanium halides, zinc alkyls, and zirconium alkoxides. Specific examples of such compounds include, *e.g.*, $Al(C_2H_5)_3$, CrO_2Cl_2, $GeBr_4$, $Ti(OC_3H_7)_4$, $TiCl_4$, $TiBr_4$, $Ti(C_5H_7O_2)_4$, $Zr(OC_5H_9)_4$, $Ni(CO)_4$, VCl_4, $Zn(CH_3)_2$, $Zr(C_5H_9O)_4$, and the like." The written description also notes in column 5, lines 40-45 that the inventors can replace the tin oxide "entirely or in part by the germanium, titanium, aluminum, zirconium, zinc, indium, cadmium, hafnium, tungsten, vanadium, chromium, molybdenum, iridium, nickel and tantalum." These latter recited metal oxides comprise those used on the "over coated layer" as set out in the written description at column 5, lines 20-21, 40-45. Claims 17 and 18 also describe this layer. Furthermore, the written description at column 4, lines 40-45 provides additional guidance by informing "those skilled in the art . . . that precursors and materials discussed in this specification must be sufficiently volatile, alone or with other materials, and sufficiently stable under the conditions of the deposition, to be a part of a composition from which the desired films are deposited."

Again, applicants question why the Examiner would find a person with skill in the art unable to select a precursor for a metal oxide or a metal oxide given this disclosure. What else would the Examiner require the person skilled in this art to have in order to

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make the choice? Applicants submit, in all three instances, whether precursors for silicon oxides, precursors for tin oxides or more broadly precursors for metal oxides, the artisan would know what compounds to select.

The Examiner, in observing that columns 1-4 of the written description teach a number of prior art silicon oxide precursors unsuitable for the purpose of applicants' invention concludes that the artisan has no further direction given to him by applicants' written description as to how to best choose the precursors that exhibit the required characteristics. (October 13, 1998 Office Action, page 2, last paragraph).

Applicants question though, how could the artisan be so unknowing that they could not select a silicon oxide precursor with the disclosure given to them in the paragraph bridging column 4 and 5 of the applicants' written description? Is the artisan really lacking in such perception that she or he would not know that the generic formula of the silicon oxide precursors answers the questions that the Examiner raises? On the contrary, it informs them of what silicon oxide compounds to employ to obtain the relatively high coating speeds set out in Claims 1-32.

Applicants have set out this genus in a straightforward way (and also included it in the claims that the Examiner now rejects) and support it with 11 species that surely contain nothing mysterious for this artisan. What technical uncertainties does the Examiner perceive on the part of the artisan that would prevent her or him from knowing what precursor materials to select based on this disclosure? Again, the Examiner must remember that this particular artisan has skills that go beyond general organic chemistry or general inorganic chemistry, and knowledge of these precursor compounds based on working for many years in the field of applying silicon oxide

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and/or metal oxide coatings to substrates such as glass.

As to the silicon oxide precursors, applicants again emphasize that Claims 1-32 requires the selection of a specific silicon oxide precursor for use in combination with tin oxide precursors in order to deposit at rates of about 350 Å/sec. or greater. The present applicants have shown in the written description how to do this by employing these materials with a compound that accelerates the reaction to the oxide which applicants will discuss further in addressing the Examiner's similar enablement rejections of the accelerant.

Thus, Claims 1-32 claim that part of the invention that provides for the deposition of silicon oxide/tin oxide coatings at about 350 Å/sec. Applicants' reissue claims 33-60 claim another aspect of the invention based on the novel combinations of tin oxide and other metal oxides with the applicants' newly discovered accelerants. Again, applicants point out to the Examiner that claims 33-60 do not have to contain a silicon oxide precursor, although they can, and importantly, comprise oxide films or articles of manufacture that do not necessarily have to be deposited at rates of about 350 Å/sec. or greater. The novelty of claims 33-60 resides in the combination of the oxide with the accelerant which the prior art neither teaches nor suggests.

Accordingly, the Examiner's focus on combinations of materials suitable for mass production of mixed metal oxide/silicon oxide films (October 13, 1998 Office Action, page 3, lines 2-9) not only fails to take into account the foregoing directions applicants provide for the selection of the compounds, but also these directions pertain only to compounds that will deposit at about 350 Å /sec. or greater, the invention set out in claims 1-32. By contrast, the novelty and patentability of claims 33-60 do not

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necessarily turn on the coating rates achieved with these compounds, but rather the nature of the film or article per se.

The Examiner also argues that the record does not present evidence showing that selecting the process conditions to exploit the large number of precursor combinations falls within the level of skill in the art at the time the invention was made. The Examiner attempts to shift the burden of proof to the applicants at this point relative to selecting process conditions suitable for reacting the claimed compositions, and for obtaining the films or articles of manufacture according to the invention. Applicants believe that the Examiner refers to the foregoing compositions, films and articles of manufacture since the application has no process claims.

In any event, the burden has not shifted to the applicants since the Examiner has not presented any evidence why the artisan, with applicants' disclosure before her or him would not know how to practice applicants' invention, bearing in mind that this artisan has worked in the field of applying metal oxide and silicon oxide coatings to substrates such as glass for several years. The Court of Customs and Patent Appeals has pointed out in In re Marzocchi, 439 F.2d 220, 224, 169 U.S.P.Q. 367, 369-70 (C.C.P.A. 1971) that "it is incumbent upon the Patent Office whenever a rejection on this basis [insufficiency of disclosure] is made, to explain why it doubts the truth or accuracy of any statement in a supporting disclosure and to back up assertions of its own with acceptable evidence or reasoning which is inconsistent with the contested statement." (Emphasis added). Also see, M.P.E.P. § 2164.05 citing Marzocchi.

The Examiner then makes the statement that "if one of ordinary skill in the art cannot predict which compounds are suitable for use under the broad range of

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conditions described as 'under conditions and at a rate suitable for mass production', one of ordinary skill in the art certainly could not be expected to predict the conditions at which a large number of vastly different compounds may be used without explicit guidance by the instant specification." (October 13, 1998 Office Action, page 3, lines 5-10). The Examiner obviously refers to the various silicon oxide precursors Applicants employs in their invention.

The Examiner points to statements applicants made in their written description about difficulties encountered in the prior art to support his position that the artisan would be adrift in trying to practice the invention. The Examiner, however, overlooks that fact that applicants in the written description not only have shown silicon oxide precursor compounds that will not work, but also instructs the artisan how to make the selection of silicon oxide precursor compounds and precursors for tin oxide compounds that will work with the discovered accelerants to deposit coatings at a coating rate of about 350 Å/sec. or greater. Look at columns 4 and 5 of the specification and the various species of silicon oxide and tin oxide precursors, and the genus that covers them to see what Applicants have provided by way of guidance to make this selection.

Applicants have also laid out methods and compounds employed in the methods for depositing metal oxide films. Lastly, in both aspects of the invention (i.e., that covered by Claims 1-32, and that covered by Claims 33-60) applicants have employed an accelerator which makes the applicants' invention novel and unobvious.

As to the accelerants, the Examiner goes on to argue that even though "water, triethylphosphite and triethyl borate are demonstrated as effective [accelerants] . . . [n]o further guidance is provided to allow one of ordinary skill in the art at the time invention

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was made to determine useful accelerants without undo experimentation." (October 13, 1998 Office Action, page 3 lines 16-20, page 4, line 1).

Initially, applicants point out that the Examiner has not demonstrated that the artisan would have to engage in undue experimentation in order to determine what accelerants to use. Applicants can find nothing in any of the Office Actions issued during the prosecution of this reissue application that clearly demonstrate the artisan would have to involve herself or himself in this type of experimentation. Rather, the applicants' written description shows just the opposite. Specifically, column 5, lines 9-19 of applicants' written description clearly describe suitable accelerants include "phosphite and borate derivatives of the general formula $(R"O)_3P$ and $(R"O)_3B$, where R" is independently chosen from straight cyclic, or branched-chain alkyl or alkenyl of from one to about six carbons; phenyl, substituted phenyl, or $R'"CH_2CH_2$—, where R'" is MEO_2C—, EtO_2C—, CH_3CO—, or HO_2C—; R" is preferably alkyl or alkenyl of from 1 to 4 carbons in length. Particularly preferred accelerants are those selected from the group consisting of boron and phosphorus esters; most preferred are TEB [triethyl borate] and TEP [triethyl phoshite]." The specification also discloses at column 4, lines 29-33 that applicants can employ "phosphites, borates, water, alkyl phosphine, arsine and borane derivatives; PH_3, AsH_3, B_2H_6; and O_2, N_2O, NF_3, NO_2 and CO_2. The additives are termed 'accelerants' herein; the accelerants serve to increase the rate of deposition of the film onto the glass from the mixture." Given this disclosure, would the artisan question what materials applicants have disclosed and further, how she or he would go about using these "accelerants"? Certainly not. The written description provides more than adequate explanation on how to proceed and to conclude that with

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this information the artisan would engage in undue experimentation simply does not follow from what the applicants have given by way of instruction.

The Examiner also takes the position that even disclosing TEOS, MBTC and accelerants selected from TEB, TEP and water, applicants' claims cover a large number of compositions that do not exhibit the desired properties and therefore fail to satisfy the requirements of 35 U.S.C. § 112. (October 13, 1998 Office Action, page 6, last paragraph.) Applicants question where the Examiner finds any basis for his conclusion that the various combinations besides TEOS, MBTC, TEB, TEP and water "do not exhibit the desired properties." Where in applicants' written description does the Examiner find a basis for making this statement? Where in the references of record does the Examiner find teachings to support this conclusion? Applicants have found nothing in either that would lead to this. Again, the Examiner must either point to the prior art to support this conclusion or base his position on a well-reasoned argument, otherwise, it does not hold. Marzocchi, supra.

The Rejection Under 35 U.S.C. § 251 and Traverse

The Examiner rejects claims 33-55 under 35 U.S.C. § 251. Applicants traverse the rejection and request further prosecution and reexamination.

The Examiner argues that "the original application contained claims to a coating composition containing an [sic] tin oxide precursor compound and an [sic] silicon oxide precursor compound. These claims were rejected as unsupported by the original specification in that only certain species of silicon oxide precursor were enabled." (October 13, 1998 Office Action, page 4, first full paragraph, lines 1-4). The Examiner

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then concluded that the recapture rule has barred the applicants from acquiring, through reissue, claims of the same or broader scope than those canceled from the original application. (October 13, 1998 Office Action, page 4, lines 13-15.)

A close reading of claims 33-60, however, will show that unlike the original claims which are now claims 1-32 of this reissue application, claims 33-60 neither specifically require depositing a metal oxide/silicon oxide coating at a rate of about 350 Å/sec. or greater nor do they necessarily include those silicon oxides found in claims 1-32 that permit coating at these high deposition rates. Claims 33-60, however, are broad enough or generic in scope to include claims 1-32 and as such, claims 33-60 dominate them.

Applicants submit that the initial inquiry relative to "recapture" turns on whether or not the parent application included the limitation of depositing coatings at about 350 Å/sec. or greater or whether applicants added this during the prosecution of the application to obtain allowance of the claims. A review of the original claims of the parent application clearly shows that at all times during the prosecution of that application, all of applicants' claims included the parameter of coating at these relatively high rates, and they never amended the claims to include this limitation in order to obtain an allowance. Now applicants realize that their invention goes beyond providing compositions that will coat at this rate or the films or articles of manufacture obtained. This amounted to an error without deceptive intention and they now conclude that the invention has a broader reach which they have made the subject of this reissue application.

Continuing with the prosecution history of the parent application, applicants

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amended those claims to specify certain silicon oxide precursors which allowed for coating speeds of about 350 Å/sec. or higher. Looking at claims 33-60, however, will show that the applicants do not limit themselves to films or articles of manufacture coated at speeds of about 350 Å/sec. or higher but that the gist of the claims centers on not only the oxides or precursors of claims 33-60 but also the accelerants employed in producing a film or an article of manufacture. Again, granted that claims 33-60 have sufficient breadth to read not only on oxides, precursors and articles of manufacture produced at these relatively high coating speeds, but also the more basic invention comprising those oxides or precursors specified in claims 33-60 in combination with the accelerants. The prior art neither teaches nor suggests this discovery.

Thus, the rejection in the parent application that required the applicants to insert the silicon oxide that would give coating rates of about 350 Å/sec. or greater simply does not apply to claims that do not have this limitation of 350 Å/sec. or greater which is to say claims 33-60. The Examiner, however, by some fiction creates the false appearance that claims 33-60 have this limitation in them and then makes up out of whole cloth an argument that applicants now try to recapture claims without specifying the silicon oxide precursor that allows for these coating speeds of about 350 Å/sec. The Examiner does this by overlooking where the novelty of claims 33-60 resides, i.e., in the oxide or precursor in combination with the accelerants irrespective of the coating speed for manufacturing them.

In summary, Applicants never presented generic claims omitting coating speeds of about 350Å/sec. in the parent application relative to the film or article of manufacture. The parent application only contained subgeneric claims with this parameter.

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Applicants further amended the subgeneric claims to specify silicon oxide precursors that would coat at this rate in order to obtain allowance. Claiming the genus now without the limitation of these coating speeds or the limitation of the silicon oxide precursor does not recapture the originally filed subgenus containing only the coating speed limitation.

This reissue, for the first time presents generic claims that not only dominate the subgenus as originally filed, but also the subgenus as amended, i.e., Claims 1-32. Applicants did not originally claim the generic invention because of an error without deceptive intent. This reissue application also contains other claims more specific to the broader application, again without the limitations of coating speeds or specific silicon oxide precursors. But that does not change the fact that these claims also do not recapture subject matter originally given up to obtain allowance, since these claims again do not rely on the coating speed as an important aspect of their novelty, although some of these claims of lesser scope inherently would have these properties.

Applicants urge the Examiner to again look at claims 1-32 and 33-60 as two distinct but related inventions with claims 33-60 dominating claims 1-32. Stated otherwise, claims 1-32 comprise a subset of the broader invention set out in claims 33-60 which dominate the overall inventive concept of silicon oxide and/or metal oxides or the precursors of either in combination with applicants' new and unobvious accelerants.

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The Rejection Under 35 U.S.C. § § 102(b) and 103(a) and Traverse

The Rejections Based on Gordon, U.S. Patent 4,187,336

The Examiner rejects the claims under 35 U.S.C. § § 102(b) and 103(a) as

unpatentable over Gordon, United States Patent No. 4,187,336 [hereinafter "Gordon '336"]. Applicants will later show why Gordon '336 does not specifically apply under either section of the Code, but initially point out that the reference even though known to the present Examiner, did not prevent claims from issuing in another patent similar in scope or broader in scope than the claims of the present application.

Applicants attach a copy of Neuman et al. U.S. Patent 5,599,387, examined by Primary Examiner David Brunsman and which issued on February 4, 1997. The Patent cites the Gordon '336 patent as prior art and claims as related applications, two applications that subsequently issued as United States Patents 5,464,657 and 5,356,718. Applicants also attach a copy of Neuman et al. U.S. Patent 5,776,236, issued on July 7, 1998, examined by Primary Examiner David Brunsman, and also claiming the same related applications, i.e., those that subsequently issued as U.S. Patents 5,464,657 and 5,356,718.

Claim 1 of Neuman et al. U.S. 5,776,236 claims "A film comprising one or more metal oxides and an accelerant" whereas claim 2 lists several metal oxides, and claim 3 describes the accelarants as "phosphites, borates, water, alkyl phosphine, borane derivatives and ozone."

Applicants claim substantially the same invention. If Gordon '336, which the Examiner had knowledge of, did not defeat the claims of Neuman et al. 5,776,236 under 35 U.S.C. § § 102 or 103 it certainly should not stand in the way of patentability of the present claims, otherwise the Patent Office would employ a double standard in the examination of applicants' competing claims.

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The Rejection Under 35 U.S.C. § 102 (b) and Traverse

The Examiner rejects claims 33-35, 37-41 and 43-55 under 35 U.S.C. § § 102(b) as anticipated by Gordon '336. Applicants traverse the rejection and request further consideration and reexamination.

The Examiner takes the position that Gordon '336 describes formation of a continuously graded mixed tin/silicon oxide film on glass from a gaseous composition of a tin oxide precursor, a silicon oxide precursor and water or oxygen gas at 480°C. The Examiner refers to Example 4 and Table E, column 6, lines 1-56 to support the rejection.

Applicants have canceled the use of oxygen as an accelerant from claim 33.

Although Table E of Gordon '336 describes the use of water as a source of oxygen, Table E limits the use of water for the deposition of "silicon oxynitride films" and not films of tin and silicon oxides as the Examiner states. Furthermore, the Table E data show that this aspect of Gordon '336 also requires a source of nitrogen including materials such as hydrazine, ammonia and the like (Gordon '336, column 10, lines 26-29). The reference only teaches the use of water as an oxygen source in forming oxynitride films and contains no teaching or suggestion of using water as a source of oxygen to form a metal oxide as distinguished from an oxynitride film. In fact, when comparing Table D in adjacent column 9, which describes compositions for forming metal oxide layers using metal precursors in combination with oxygen or nitrogen oxide, the artisan would conclude that the omission of water from the oxidizing materials (oxygen and nitrogen oxide) would suggest its unsuitability for this purpose.

Accordingly, by deleting oxygen gas from the accelerants in claim 33, and with

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Gordon '336 in effect teaching away from the use of water as an oxidizing material by only employing it in the formation of oxynitride films, this reference does not anticipate claims 33-35, 37-41, or 43-60.

The Rejection Under 35 U.S.C. § 103(a) and Traverse

The Examiner rejects claims 1-32, 36 and 42 under 35 U.S.C. § 103(a) as unpatentable over Gordon '336 and further in view of Lagendijk, United States Patent No. 5,028,566. Applicants traverse the rejection and request further consideration and reexamination.

The Examiner argues that even though Gordon' '336 does not teach the silicon oxide precursors of applicants claims 28-32, Lagendijk allegedly teaches silicon oxide precursors within the scope of the claims for use in CVD. The Examiner then states "it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ those compounds in order to obtain the disclosed advantages." (July 6, 1998 Office Action, page 6, third full paragraph). The Examiner refers to silicon oxides within the scope of the present invention when referring to "those compounds." He also indicates that the "disclosed advantages" of those silicon oxide precursors comprise using them in CVD processes. (October 13, 1998 Office Action, p. 8, lines 5-8).

Neither reference contains any motivation for combining the teachings of one with the other for several reasons. See M.P.E.P. § 2143.01. In the first instance, Lagendijk has not recognized that several compounds such as phosphorous or boron-based materials function as accelerants, rather, the reference describes these materials

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as "dopants." (Lagendijk, column 8, lines 19-29). In fact, the very limited species of silicon oxide precursors that lay at the core of the Lagendijk invention would seem to deposit at very low rates and the reference neither teaches nor suggests that the dopants in any way positively affected the deposition rate, i.e., acted as accelerants.

Lagendijk in this regard describes the deposition of a silicon oxide film or doped silicon oxide film on a semiconductor device at reduced pressure for a period of time to form the desired thickness of film "readily calculated from the rate of deposition. . . . The rate parameters are easily ascertained for a given system and are somewhat a function of the system, thus no one set of rate data is significant, and certainly not critical to the invention." (Lagendijk, column 5, lines 59-64) (emphasis added). Thus, Lagendijk admitted that nothing in his formulation is significant to deposition rates one way or another. He further notes the dopant effect as to various compounds of phosphorous, boron, antimony, arsenic and chromium, but only when used with silicon compounds having no carbon-oxygen-silicon bonds, and two or more silicon atoms. (Lagendijk, column 8, lines 5-29). Applicants' silicon oxide precursor compounds of Claims 1-32, however, have carbon-oxygen-silicon bonds, which further distinguishes Lagendijk.

Thus as regard applicants' Claims 1-60, with Lagendijk not aware of any effect the dopants have on coating rates and the fact that Lagendijk uses a silicon oxide precursor totally different from applicants' precursors in Claims 1-32, this reference would hardly render the instant claims obvious, whether standing alone, or taken in view of Gordon '336.

Gordon '336, on the other hand, does not teach or suggest "dopants" for

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combination with the various oxide and/or silicon oxide films disclosed, but rather "oxidizing agents." More significantly, Gordon '336 says nothing about compounds added to the film forming precursors as increasing the deposition rate. The artisan therefore, in combining the teaching of Lagendijk that "no one set of rate data is significant, and certainly not critical to the invention" with the teachings of Gordon '336 which contains nothing about increasing deposition rates, let alone providing a "dopant" with the film forming precursors, would have no motivation to combine the two teachings. This combination of references clearly presents the question: what would motivate the artisan to make the combination? Certainly not the rate data. Additionally, the combination of references has to suggest the results achieved by Applicants' invention in order to make out a sustainable obviousness rejection. M.P.E.P. § 2144, second paragraph. Dopants disclosed as not affecting the rate of deposition of the oxide coatings certainly doesn't suggest their use as accelerants, but rather, just the opposite.

The obviousness rejection cannot stand where it relies on applicants' disclosure of certain combinations of materials and the Examiner's citation of references showing those materials individually, but not the combination. In order for the rejection to stand, the references also have to show some reason for making the combination. If nothing else, Lagendijk would teach away from that combination, again with the observation that with regard to the combinations he evaluated "no one set of rate data is significant, and certainly not critical to the invention."

The Examiner also states "the difference between claims 36 and 42 and the instant claims is the compound employed as accelerant." (July 6, 1998 Office Action,

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page 6, fourth full paragraph). In repeating this rejection, the Examiner states that the "instant claims" refer to the other claims in the 35 U.S.C. § 103(a) rejection. (October 13, 1998 Office Action, page 8, last paragraph).

In any event, the Examiner goes on to observe that Lagendijk teaches the addition of trimethylborate or triethylphosphite to CVD compositions and concludes the artisan would have found it obvious to add triethylphosphite (the accelerant of Claims 36 and 42) to the composition of Gordon '336 in order to obtain the advantages disclosed by Lagendijk. Applicants initially point out that Lagendijk employs trimethylphosphite, and not the triethylphosphite of Applicants' Claims 36 and 42. Even assuming that these compounds are equivalent (which Applicants do not admit), the use of Lagendijk's trimethylphosphite in the Gordon '336 process would only lead the artisan to believe that it would have no effect on the rate of coating because Lagendijk clearly states that the dopants (which would include trimethylphosphite) have no effect on coating rates. The combination of Lagendijk and Gordon' 336 serve only to support Applicants' position that the references in combination with one another do not make out a case of obviousness.

The Examiner also makes the unsupported statement that he "has presented convincing evidence that suggests selection of other combinations that would exhibit the basic and novel characteristics of the invention would require undue experimentation." (October 13, 1998 Office Action, page 7, lines 3-5). Again, applicants ask what evidence and where? Applicants in this regard have shown in their written description that certain classes of silicon oxide precursors will not provide the desired deposition rates of about 350 Å/sec. or greater and have provided the artisan

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with clear directions on how to select the silicon oxide precursors that will provide these deposition rates for that part of the invention embraced by claims 1-32. How would these instructions to the artisan require undue experimentation? Applicants have provided the generic formula for these silicon oxide precursors as well as species as set out previously in this Amendment. Having obtained this information, the artisan would readily be able to proceed to practice the invention of claims 1-32.

Perhaps, the artisan would have to engage in some experimentation, but, where has the Examiner found that this amounts to "undue experimentation"? Nowhere in the specification, nor the reasons presented by the Examiner, nor references to prior art show that experimentation with applicants' disclosure of the silicon oxide precursors amounts to undue experimentation. Applicants also submit the same holds for selection of the accelerants or metal oxide precursors, and that the Examiner, as with silicon oxide precursors, has not pointed to anything that would show applicants' description does not provide sufficient guidance for choosing these other accelerators. Again, what in applicants' written description or the references cited by the Examiner amounts to evidence claimed by the Examiner that the selection of any of Applicants' components involve undue experimentation? Nothing can be found in either regard.

Conclusion

Applicants request that the Examiner withdraw the rejection in view of the foregoing amendments and remarks and pass the application as amended to issue.

If filing this response requires an extension of time pursuant to 37 C.F.R. § 1.136 and payment of an extension fee or other fee, any of which this response fails to

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account for, applicants' attorneys request such an extension and charging such fees to their deposit account number 06-0916.

Respectfully submitted,

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